2007 RESEARCH PROBLEM STATEMENT

Problem Title: Snow Fence Configutations To Allow For Close Procimity To Protected Area **No.:** 07.02-10

Submitted By: Norton Thurgood **Email:** NThurgood@Utah.gov

Project Champion: Norton Thurgood

(UDOT or FHWA employee who needs this research done, will help the Research Division lead this project, and will spearhead the implementation of the results. If the project gets prioritized at the UTRAC conference, a Champion Commitment Form will be required before funding.)

1. Briefly describe the problem to be addressed.

Several areas around the state including I-84, from Mile Post 20, North to the Idaho line; SR 6 T MP 211 to 213 (Soldier Summit), SR-6 MP 176 (Little Acorn) US-40 MP 45-60) Strawberry Valley SR16 MP 7 is prone to severe snow drifting and poor visibility. This area could benefit greatly from snow fence. However, snow fence should normally be placed 30 to 35 times the height of the fence from the protected area. This means the fence will have to be placed on adjacent private property. In this area the private property owner will not allow UDOT to place snow fence on his property even if he is compensated. The right-of-way fence is 70 feet from the interstate. With 70 feet of space, is there enough room to place snow fence in some configuration that would tend to build drifts parallel to the interstate rather than across it.

2. Strategic Goal: ☒ Preservation ☒ Operation ☒ Capacity ☒ Safety (check all that apply)

3A. List the research objective(s) to be accomplished:

1. Find a configuration of snow fence that would tend to form drifts parallel to the traveled way rather than across it.
2. If sections of snow fence were placed at an angle to the interstate in close proximity to each other, would draft from one section drift snow down the right-of-way from the another section.
3. What height, angle, proximity, and porosity should be used.

3B. List the major tasks to accomplish the research objective(s): **Estimated person-hours:** 450

1. Literature search
2. Develop computer-based or scale models that would test for optimum height, angles and proximity of sections. Snowfence porosity should be varied
3. Does snow storage affect drift formation?
4. If it is determined that some configuration may be suitable, UDOT maintenance personnel could install a limited number of sections for trial.

4. Estimate the cost of this research study including implementation effort (use person-hours from No. 3B): $30,000

5. Indicate type of research and/or development project this is

Large: ☒ Research Project ☐ Development Project
Small: ☐ Research Evaluation ☐ Experimental Feature ☐ New Product Evaluation ☐ Tech Transfer Initiative
☐ Other: _____

(A small project is usually less than $20,000 and shorter than 6 months)

6. Outline the proposed schedule (when do you need this done, and how will we get there):

Spring 2007, Literature search
Summer 2007, Develop models to test for optimum configuration
Fall 2007, UDOT installs limited number of sections for testing
Winter of 2008-2009 – field performance evaluation
Spring 2009 – publish results

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7. What type of entity is best suited to perform this project (University, Consultant, UDOT Staff, Other Agency, Other)?
University and UDOT

8A. What deliverables would you like to receive at the end of this project? (e.g. useable technical product, design method, technique, training, workshops, report, manual of practice, policy, procedure, specification, standard, software, hardware, equipment, training tool, etc.)
Design method
Atmospherically sensitive Design Selection Matrix

8B. Describe how this project will be implemented at UDOT.
Research would do a literature search. University would develop models. UDOT would install test sections using Region 1 maintenance forces.

8C. Describe how UDOT will benefit from the implementation of this project, and who the beneficiaries will be.
Driver visibility on this section of I-84 would be increased. Snow drifts and accidents on the interstate would be reduced.

9. Describe the expected risks and obstacles as well as the strategies to overcome them.
Optimum angles and proximity may not be possible. Do thorough literature search first.

10A. List other people (UDOT and non-UDOT) who are willing to participate in the Technical Advisory Committee (TAC) for this study:

Name	Organization / Division / Region	Phone	Email
Brent Stokes	Snowville Station Supervisor	435-872-8164	Lyle Brent Stokes@utah.gov
Todd Richins	Region Two Area Supervisor	801-975-4964	TLRichins@utah.gov
Ron Tabler	Tabler & Associates		
Cliff Spoonermayer	WyDOT/University of Wyoming		

10B. Identify other Utah, regional, or national agencies and other groups that may have an interest in supporting this study:
Utah Highway Patrol, Box Elder County , other snow belt DOTs; traveling public
Centuar Fence Company